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Part III

Circulation Element

San Diego County General Plan -1990

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Chapter 1

Road Network

The Circulation Element consists of:

A diagram in the form of nine maps at a scale of 1" = 4,000 feet setting forth the major road system both existing and planned and so identified by the signature of the Chairman and Secretary of the Planning Commission and Chairman and the Clerk of the Board of Supervisors.

A legend for the aforesaid maps setting forth the various classifications of roads with a description of the purpose and design standards for each classification.

It is the intent of the Circulation Element to preserve a corridor uninhabited by any permanent structure for future road right-of-way for each and every road shown on the Circulation Element.

It is the intent of the Circulation Element that all land developments conform to the Circulation Element.

It is the intent of the General Plan that in road matters the Circulation Element shall supercede any proposal of any Community, Subregional, or Development Plan.

The Circulation Element of the County General Plan depicts corridors for public mobility and access which are planned to meet the needs of the existing and anticipated population of San Diego County. The adoption of this Circulation Element by the Board of Supervisors of San Diego County complies with the requirements and responsibilities set forth in the State of California Streets and Highways Code and the Planning and Zoning Law of the State of California Government Code.

The Circulation Element serves to designate those roads in the unincorporated area of the County

which under state law constitute the County's select system of major roads for the purpose of determining eligibility for improvement with certain specified Highway User Tax Funds. The title "Circulation Element" used on this Plan corresponds to the term "General Master Plan" as used in Section 186.4 (3) of the Streets and Highways Code of the State of California.

It includes the circulation systems of the general plans of the incorporated cities in San Diego County, however, some of the city collector roads are not shown on this Plan due to drafting limitations. The Circulation Element shows corridors for existing and proposed state highway routes as planned by the California Division of Highways in cooperation with the cities and the County. It has been coordinated with neighboring Counties to the north and east, and with appropriate officials in Baja California and has been correlated with the Land Use Element of the County General Plan.

Objectives of this Element are to provide a guide for the provisions of a coordinated system of highway routes serving all sections of San Diego County, to help achieve efficiency and economy in this important field of public works, to facilitate the planning to meet street and highway needs in subdivision and other land development programs and to inform the citizens of San Diego County of these plans. With this Plan, separate actions by various agencies and jurisdictions at different times can contribute toward attainment of these goals.

Principles used to develop this Plan are those which constitute accepted contemporary highway planning procedure. They include use of traffic counts, origin and destination surveys, and

estimates of future population and the effect of future traffic generators. Corridors to provide appropriate traffic carrying capacity then are proposed along routes which will serve these calculated traffic volumes. These routes have been adjusted to conform with topography and other significant natural and cultural features which necessarily influence their location.

The corridors shown on this Plan are grouped into classes according to the character of service they are intended to provide. It is important to recognize that individual corridors do not serve travel independently of the network. Rather, most travel involves movement through the network. The classifications shown on this Plan are intended to define the nature of the travel and service that a particular corridor provides.

The classifications shown on the Plan identify corridor widths to be protected. Without planning protection the community would be severely hampered in its ability to provide adequate transportation facilities.

The classifications shown on the plan are:

- A **FREEWAYS** satisfy the requirements for mobility by providing for major intra and interregional travel. They are corridors which accommodate trips at highest speeds with access only from selected links of the network, consistent with the population and network densities of the area they traverse.
- B **PRIME ARTERIALS** primarily satisfy the requirement for mobility, and provide for major intraregional travel not included in the freeway system and access is controlled as necessary. Planned corridor width is 126 feet. However, when access and traffic conditions warrant, a 102 foot corridor width may be permitted.
- C **MAJOR ROADS** provide for mobility and adjacent access. They are spaced at intervals consistent with population density, to accept travel from collector roads and significant traffic generators. They provide traffic service linking areas of the County and cities to the system of arterials and freeways. Major road locations are determined either by the anticipated traffic volume or by the necessity to designate a

continuous uniform thoroughfare system. They accommodate shorter trips at intermediate speeds and serve as feeders to arterials. Access, parking, and intersections are controlled as necessary. Planned corridor width is a minimum of 102 feet.

- D **COLLECTOR ROADS** primarily satisfy the requirements for access. They are spaced at intervals consistent with population density, to collect traffic from local roads and neighborhoods or distribute traffic from major and arterial roads to local streets and neighborhoods. They are usually undivided roads which allow low speeds and serve as feeders to major roads and prime arterials. They have no access control, and parking is controlled only as necessary. Planned corridor width is 84 feet.

- E **RECREATIONAL PARKWAYS** serve the special purpose of providing for recreational travel through an area of scenic or recreational interest.

Such a road is to be designed primarily for pleasure travel in keeping with the rural or recreational setting that it traverses and serves. Those unique design features to provide for the safe and free flow of traffic to enhance the recreation and pleasure aspects of the roadway facility are contained in the County Road Standards. Planned corridor width is a minimum of 100 feet.

At such time as any road is constructed or improved, it will not necessarily be constructed to the ultimate section possible within the protected corridor. Appropriate stage construction to the degree made necessary by traffic is anticipated.

It is recognized that it is not humanly possible to anticipate all situations that may arise and to prescribe classifications and standards applicable to every situation. It is anticipated that the classifications and standards will be applicable to a vast majority of cases, but they are not inflexible rules to which there can be no exception. From time to time the Board of Supervisors may allow exceptions where the application of classifications and standards to a specific situation results in unusual and unreasonable hardship and when it is not detrimental to the public interest that an exception be made.

Chapter 2

Bicycle Network

(A Sub-Element of the Circulation Element)

Introduction

BACKGROUND

Across the United States there is a resurgence of interest in bicycling. As a result of the growing number of bicycles and users it has become exceedingly important to prepare a comprehensive plan for bicycle routes. People of all ages are now cycling not only for recreation, but also for physical exercise and for transportation. The growing use of the bicycle, particularly for short and intermediate trips, is proving to be a viable alternative to the automobile. If properly planned routes are provided, the bicycle user can play an important role in reducing traffic congestion and air pollution.

The Bicycle Network Sub-element of the Circulation Element proposes a coordinated approach to bicycle routes throughout the San Diego County Region. The proposed network has been reviewed by all thirteen cities in San Diego County, the Counties of Imperial, Orange and Riverside, and all of the active community planning groups in the unincorporated area of San Diego County. This sub-element is only a beginning step in the preparation of a comprehensive bicycle system. It only identifies the major inter-community corridors essential to a region-wide system. This Plan anticipates that each city will adopt a more detailed bicycle feeder system plan showing local routes which supplement the County-wide network.

TERMS DEFINED

The term bicycle route is used for all facilities that explicitly provide for bicycle travel. It is a generic

term used in the National Manual on Uniform Traffic Control Devices for a bicycle course which is to be traveled.

Three classes of bicycle route are defined:

1. **Bicycle Trail** — A separated right-of-way designated for the exclusive use of bicycles. Crossflows by pedestrians and motorists are minimized.
2. **Bicycle Path** — A semi-exclusive right-of-way for use of bicycles contiguous to a roadway. Crossflows by motorists to use driveways is allowed and cyclist obligation to pedestrians must be stipulated.
3. **Bicycle Lane** — Part of road right-of-way designated by signs and markings for the use of bicycles and shared with moving motor vehicles. If parking is to be allowed, warrants should be established considering parking turnover, traffic speed and volume on the adjacent land, percentage of truck traffic, and possible advantage to parking restrictions for certain hours.

The terms Network, Network Plan or Bicycle Network as used in this sub-element shall refer to the corridors shown on the attached map identified as "Circulation Element — Bicycle Network."

The term "Bicycle Feeder System" or "Bicycle Feeder Plan" shall refer to any local system of lanes, paths or trails supplemental to and acting as feeders to the Bicycle Network.

Goals and Objectives

GENERAL GOAL -- BICYCLE NETWORK PLAN

To provide for the safe and convenient use of bicycles throughout San Diego County for recreation and as a viable alternative to the automobile as a form of local transportation.

VALUES TO BE ACCENTUATED IN ACHIEVING THE GOALS

1. Maximize citizen participation in the planning, programming and financing of bicycle routes.
2. Encourage all efforts by individual citizens and private organizations interested in the development of bicycle routes.
3. Preserve property rights by regulating private activities only to the extent necessary to carry out the public interest in achieving these goals.
4. Utilize the Community Planning Program to the maximum extent in planning for bicycle routes.

GOAL I

Encourage the development of bicycle routes throughout the County.

Objectives

1. Adopt an ordinance requiring subdivisions to develop and dedicate bicycle trails and/or paths.
2. Utilize state and federal monies for acquisition and construction of bicycle routes.
3. Utilize public property such as flood control channels, parks and lightly traveled secondary roads, wherever possible, for construction of bicycle routes.
4. Utilize utility rights-of-way and easements where possible for construction of bicycle routes.
5. Utilize abandoned public and utility rights-of-way and easements where possible for construction of bicycle routes.

6. Actively seek new means for the acquisition and construction of bicycle routes.

GOAL II

Provide bikeway routes with uninterrupted connection, affording safe and convenient community-wide accessibility while preserving the natural environment to the greatest extent practical.

Objectives

1. Locate bicycle routes along designated scenic highways wherever possible.
2. Connect cultural facilities, recreation areas and educational facilities by bicycle routes.
3. Separate bicycles and automobiles whenever it is economically and physically possible to do so.
4. Locate bicycle routes so that they blend with the community and give the rider a sense of spaciousness and visual excitement.
5. Locate access routes to the bicycle routes in convenient locations, preferable with automobile parking facilities for those driving to these locations.
6. Design bicycle routes as an integrated part of all subdivisions and planned residential developments with connections to bicycle touring routes.

GOAL III

Provide the related facilities and services necessary to allow bicycle travel to assume a significant role as a form of local transportation and recreation.

Objectives

1. Provide parking areas for bicyclists in all major employment, educational, and commercial centers, as well as recreational areas.
2. Encourage commuter bicycling as a means to reduce air pollution and traffic congestion.
3. Provide space for carrying recreation and commuter bikes on public transportation systems.

The Bicycle Network Plan

The Network Plan consists of a diagram in the form of a map and this text. The map is intended to show the corridors that are needed to provide: a) a circulation system for the entire County; and b) a connecting link between population centers and recreational and scenic areas.

The text sets forth goals, objectives and standards for the construction and marking of bicycle paths and related facilities.

The Network Plan reflects the existence of work centers, educational centers and recreational and scenic sites, and proposes interconnections that provide safety, mobility, efficiency and pleasure. The routes have been planned to emphasize the unique and distinctive quality of each of the many varied geographical areas of the County. It is the intent of the Bicycle Network that the routes be developed with an absolute minimum disturbance of the natural terrain. Thus the standards set forth are not meant to be rigid and firm but rather flexible and reflective of the natural topography of any given area. If in some instances it is necessary for the bicyclist to walk and push his bicycle this is preferable to a major adverse effect on the total environment.

INTENT OF THE PLAN

It is the intent of the Bicycle Network that each city will adopt, and each unincorporated community will prepare and submit to the Board of Supervisors for adoption, a more detailed Bicycle Feeder System showing local routes to supplement the Network.

In the preparation of unincorporated community plans it is intended that the Network as shown on the attached map will either be incorporated into the local Bicycle Feeder System or that a modified Network will be proposed that will serve the needs of the entire County as well as or better than the Network included in this sub-element.

The Bicycle Network Plan provides corridors, but does not delineate specific locations for the bicycle trails, paths, or lanes. It is the intent of this Plan that specific plans at a larger scale be prepared and adopted in conformance to the standards, goals and objectives of this sub-element. The specific plans will be adopted utilizing the same procedure as used in the adoption of specific plan for roads.

It is specifically the intent of the Bicycle Network Plan that all future subdivisions shall be designed to incorporate the Bicycle Network. A subdivision which includes land in the corridors shown on the "Circulation Element — Bicycle Network" is not consistent with the General Plan unless the design includes a bicycle path or trail within the corridor or unless the subdivider can provide a suitable substitute corridor that would serve the needs of San Diego County as well as or better than the corridor shown on the "Circulation Element — Bicycle Network." The mere provision of bicycle lanes will not meet this requirement, unless the Board of Supervisors finds that an extreme hardship due to the peculiar and unique characteristics of a parcel precludes the reasonable development of a bicycle trail or path.

The widths of the bicycle routes will be determined by physical conditions, but emphasis will be placed on use of existing rights-of-way and separation of the bike routes from vehicular traffic where possible.

An important component of a total bikeway system is the provision of staging areas. This should include a parking area for automobiles to accommodate those who desire to drive to one point of interest and cycle to another either for transportation, exercise or recreation. Another facility that should be provided at convenient locations along the bicycle routes such as at schools, shopping centers and work centers is bicycle parking racks with locking facilities. An increase in the level of bicycle utilization will require a more structured process for dealing with the parking and locking problem. Installation of bicycle racks with provision for locking will need to replace the chaining to sign posts and lamp posts that is currently practiced. Where large numbers of bike parkers are projected, an attended parking lot could be considered. Public parking lots and structures could make provision for bicycle parking in marginal space without affecting automobile capacity, or special spaces could be marked for bicycles only and accommodate 14 bikes on each automobile parking space.

It is essential that the industry improve locking devices to reduce the high theft rate. Presently potential theft is a major deterrent to more widespread bike use.

It is the intent of this Network Plan that staging and parking facilities as discussed above are an eligible transportation and recreational expense. The Plan encourages schools and special districts to provide this type of facility and it is the intent of the County to use available funds for these purposes as well as for the bicycle routes described in the Network.

Design and Standards

DESIGN CONSIDERATIONS

Design must consider the space required by the cyclist, minimum widths and clearances, grade, radius of curvature, design speed, surface, parent base material and drainage.

Clearances: The UCLA Report to the California Legislature has recommended widths and clearances. That a single cyclist should have a minimum width of 3.3 feet (1 meter) and additional lateral clearance to static obstructions is recognized. But a single lane is not particularly effective since it does not allow passing and cyclists prefer to ride side by side where possible. Therefore 8 feet has been taken as a standard width for a two-way facility. A height of 7.4 feet for vertical clearance is a minimum and 8 feet to static overhead obstructions is recommended. Two-way bicycle traffic on a bike lane located within the roadway on one side of the street is not permitted in California.

Grade: Because of the unique terrain of the San Diego area with high mesas and broad canyons a rideable grade is an important design consideration. Where long or severe grades occur consideration should be given to rest stops. Grades should be less than seven percent or it is to be expected that some will have to walk their bicycles.

Speed: While bicycle speed may exceed 40 mph, it is felt that a design speed of 15 mph is acceptable for most bicycle facilities. This may not be conservative enough, however, where grades exceed 4%. Long or steep routes where speeds significantly above 15 mph may be anticipated should be given higher design speeds to conform with the expected cycling.

Surface: Two inch thick asphalt concrete is adequate for supporting any wheel loading from bicycles and also adequate to support maintenance equipment which would be on the facility (i.e., sweeper). The requirement of base material should be determined considering the expansive characteristics of the native soil and the desire to prevent cracking and heaving of the asphalt surfacing.

SAFETY

The bicycle facility with minimum conflict between motor vehicles is obviously safest. Therefore, the separation by construction of trails and paths should be implemented on major corridors. New developments should provide for the bicycle as part of the subdivision process, etc.

Realistically, however, it will be necessary to provide bicycle lanes on the streets. Some separation between the cyclist and moving vehicles is very desirable. Where parking is permitted the vehicle parking and leaving will be in direct conflict with the cyclist and opening doors can be dangerous. Therefore every effort should be made to prohibit parking where bike routes are to be established. On one-way streets the bike lane should be on the left since drivers doors will be at the curb side and opposite from the cyclists.

Intersections are a big problem to the cyclist. Turning vehicles do not see the conflict or do not choose to honor the cyclist right-of-way. This is a problem with the path as well as the land and the bicyclist must exercise extreme caution to assure his own safety.

Left turns may be legally accomplished by cycling into the center of the road and turning like a vehicle but this is of questionable safety to the cyclist, especially school children. A suggested alternate method is to follow the pedestrian route around the intersection. That is to continue in the direction of travel to the far side of the intersection and then enter the right lane of the cross street in the direction of travel desired.

Nighttime fatalities to cyclists are disproportionately high and visibility of the bicycle is critical. The cyclist should have reflective pedals and a light. This is required for new bicycles by state law but conversion of existing bikes should be accomplished for night visibility and safety.

Lighting: Bike crossing illumination is critical at nighttime and backlighting is very desirable. The lighting must be capable of providing nighttime identification of the cyclist.

For safety it is desirable that the bicycle route be lighted adequately to provide visibility of the surface and surroundings and particularly at decision points.

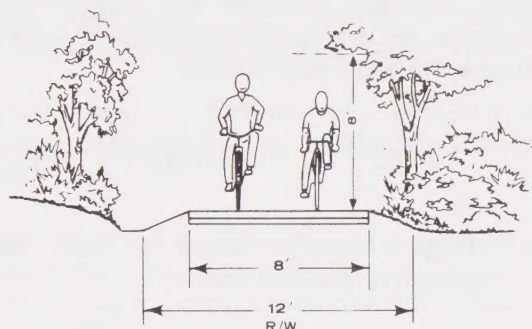
Signing: A primary element in any program to provide a bike route will be adequate signing to identify the route both for the cyclist and the motorist. Standard signs have been adopted by the California Uniform Traffic Devices Commit-

tee for marking routes and crossings. It is expected that more signs and markings will be developed with time.

At the present a six inch solid white paint line is the California official designation for a bike lane. Stencil markings and symbol designations of bike lane are recommended to complement posted signing.

The figures that follow represent the County-wide standards for bicycle routes. It is the intent of the Plan that these standards be modified when necessary to preserve natural terrain.

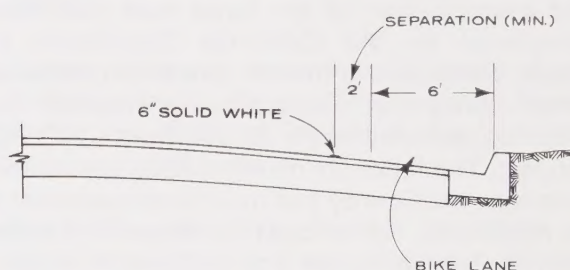
BICYCLE TRAIL



Bike trail is for two-way cycling use. It minimizes interactions with motor vehicles and pedestrian traffic. Design speed is 15 MPH.

This is one of the alternatives for new construction. Bike trail is separate from roadway in its own easement. Where a new subdivision is required to provide a bicycle route, this would be one of the standards used.

BICYCLE LANE - WITHOUT PARKING

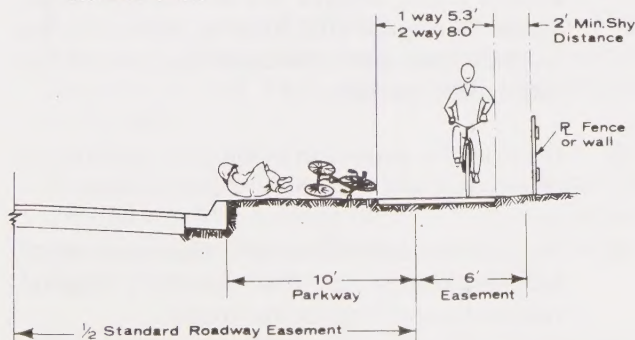


VC 21207

A bicycle lane may be established by ordinance. A bicycle lane is separated from any vehicular lanes upon highways.

This design to be used only on existing roads where adequate width exists to provide a separation and a lane. (not for use in new subdivisions)

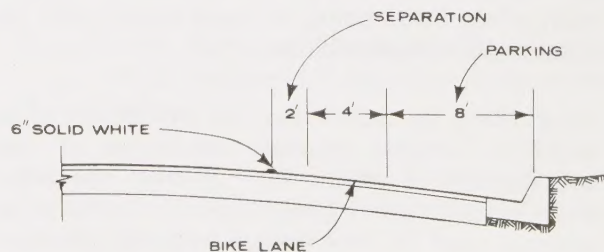
BICYCLE PATH



Where a new subdivision is required to provide a bicycle route, this would be one of the standards used. One path on each side of a road.

This path is located on its own easement and may also project into the parkway of a road easement.

BICYCLE LANE - WITH PARKING



This design to be used only on existing roads where adequate width exists to provide a separation and a lane. (not for use in new subdivisions)

Implementation

As in the implementation of any plan the financial considerations are paramount. The fiscal resources to implement the Plan are not presently totally available. However, both state and federal legislation has been introduced to provide funds. In addition, local general funds or general obligation bond moneys may be available in the future.

When the California Legislature adjourned on December 1, 1972, it had passed the greatest number of bicycle bills in its history. As a result of recent legislation cities and counties may now spend gas tax money to construct separate bicycle paths.

The Mills Bill SB36 allocates \$30,000 per month to a Bicycle Lane account in the State Transportation Fund for use by cities or counties. Details of the appropriation of the funds have now been completed by the California Department of Public Works, and in the first quarter allocation of these bonds San Diego County received top priority, receiving nearly \$6,000 from a \$25,000 request. The funds are distributed by population, however, the County had insufficient population to receive the full amount requested. A Federal Bicycle Transportation Act has been introduced which would provide federal money on a matching basis with local communities to aid construction of bicycle lanes and paths.

Because of the total cost involved in existing urban areas it is not probable that separate bicycle paths will be developed in the immediate future. It is expected that shared roadways will be common on portions of bike routes, but the goal remains to provide the highest standards practical for the amount of use a particular route may be expected to receive. Priorities should be established based upon the relative importance of a particular route to the overall Bicycle Network with prime value going to those routes with the greatest anticipated volume.

In addition to acquisition, by utilization of all available funding sources, regulation of new subdivisions to assure that all new residential development will include bicycle routes is an integral part of the implementation program. Specifically it is intended that amendments to the subdivision ordinance will be prepared that will implement this Plan.

After adoption of the General Plan, which outlines corridors rather than specific locations, it will be necessary to prepare more specific detailed plans at a larger scale for individual bicycle routes. This should be done in conjunction with a citizens' Bicycle Advisory Committee made up of those who are knowledgeable about, and interested in cycling. This Bicycle Advisory Committee could also serve as technical support to the Board of Supervisors on related matters such as maintenance requirements, citizen complaints, or safety matters. Since the "bicyclist" is a heterogeneous mixture from preschooler through olympic master, to grandparent on a tricycle, many different inputs to the program are very desirable to assure development of a balanced program in San Diego County.

Recommendations

1. Prepare specific plans for each corridor shown on the Plan map.
2. Establish a program for acquiring easement from private utilities for bicycle use.
3. Prepare detailed bicycle feeder system plans for all unincorporated communities as a part of the community and/or subregional planning process.
4. After completion of the bicycle feeder system plans, amend the subdivision ordinance to require that bicycle trails or paths be dedicated and developed as a part of the subdivision process.
5. Include the provision of bicycle facilities in all regional and local park specific plans.
6. Include the acquisition and development of bicycle routes in the County's Capital Improvement Program for roads.
7. Establish a County program in cooperation with schools, shopping centers and industrial establishments to provide parking and locking facilities for bicycles.

Appendix

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